

ABSTRACT OF THE DISCLOSURE

Variable modulation within combined LDPC (Low Density Parity Check) coding and modulation coding systems. A novel approach is presented for variable modulation encoding of LDPC coded symbols. In addition, LDPC encoding, that generates an LDPC 5 variable code rate signal, may also be performed as well. The encoding can generate an LDPC variable code rate and/or modulation signal whose code rate and/or modulation may vary as frequently as on a symbol by symbol basis. Some embodiments employ a common constellation shape for all of the symbols of the signal sequence, yet individual symbols may be mapped according different mappings of the commonly shaped 10 constellation; such an embodiment may be viewed as generating a LDPC variable mapped signal. In general, any one or more of the code rate, constellation shape, or mapping of the individual symbols of a signal sequence may vary as frequently as on a symbol by symbol basis.